Canada Now!

VOL. 1 NO. 4 SOCIAL STUDIES NOVEMBER, 1977

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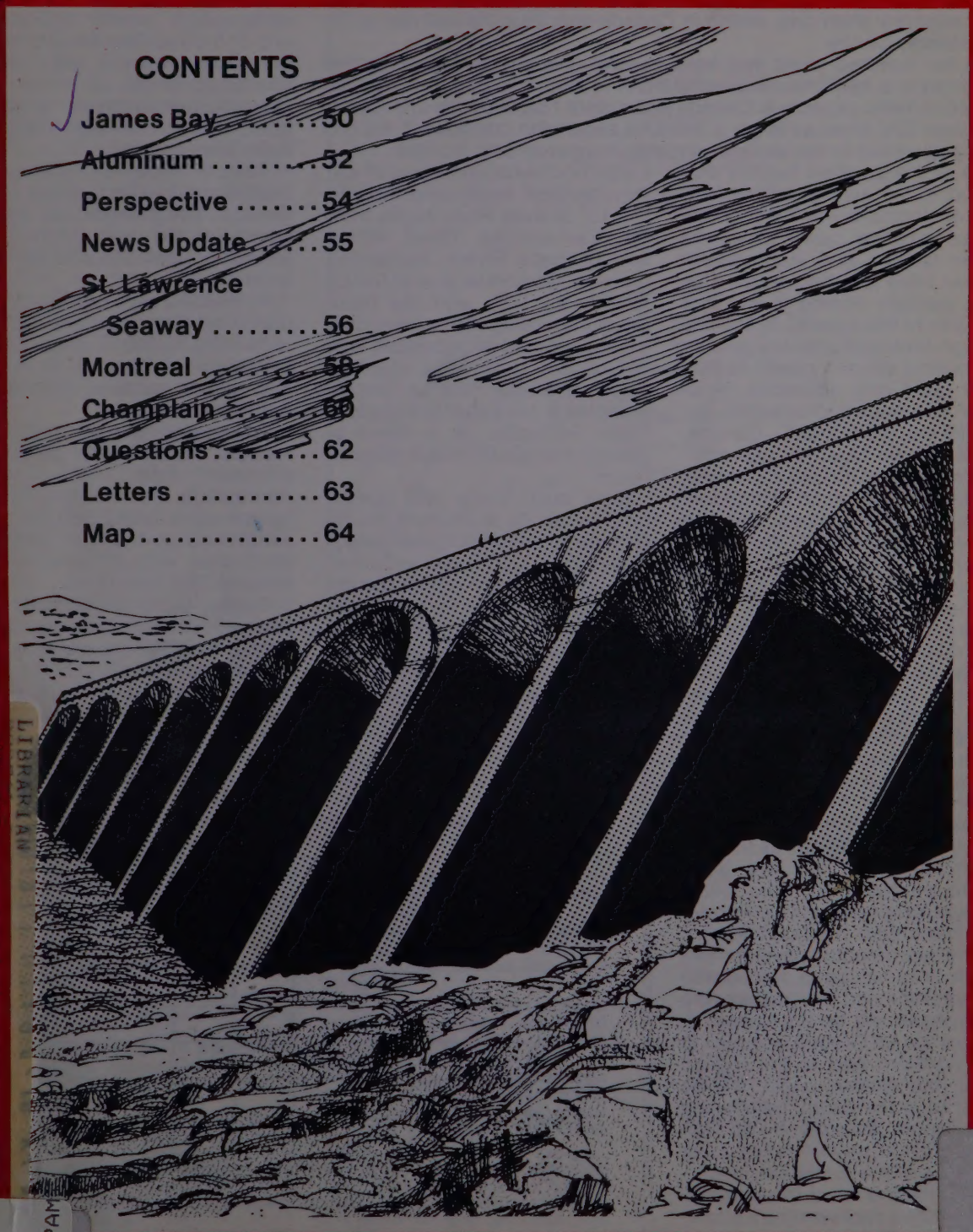


THE JAMES BAY

The history of the generation and transmission of hydroelectric power is a relatively short one, dating in Canada only from the last half of the Nineteenth Centry.

In the hundred years that have passed, this source of energy has undergone a tremendous development. In fact, whereas in 1900 total installed hydro capacity in Canada was a mere 133,000 kilowatts , today it is over 200 times as large, a fabulous expansion considering the fact that population in the same period has increased only fourfold.

One of the greatest hurdles that stood in the way of widespread use of electricity was the problem of transmitting power from the often remote and inconvenient power sites to urban areas. This was partially solved in the first decade of this century by the use of high-tension transmission lines permitting electric power to flow over fairly long distances. However, the vast hydroelectric potential of Northern Canada, especially in Quebec, Labrador, Manitoba, and British Columbia, lay beyond the reach of high-tension transmission lines. This was left undeveloped until the 1960's when a technological breakthrough, the development of extra-high voltage (EHV) transmission, dramatically extended the distance over which electric power could be transmitted econonically. This breakthrough, therefore, made available the power of the James Bay complex.

This development will cover an immense area of 356 square kilometres, more than one-fifth of Quebec. Within the area, which lies some 430 kilometres north of Montreal, there are five large rivers, the Nottaway, Broadback, Rupert, Eastmain, and La Grande, and more than 100,000 lakes.

The hydroelectric development of the area has been divided into two regions and two phases; the first phase will be the construction of the La Grande complex in the northern part of the region, while the second phase will be centred in the south, harnessing the Rupert, Broadback and Nottaway Rivers, as well as the upper reaches of the Eastmain.

This focal point of the development sector represented a superior choice for two main reasons: Large additional quantities of water, could be easily diverted into the La Grande River basin from the Caniapiscau, Great Whale and Opinaca Rivers, increasing the average annual flow of the La Grande by 80%, and the topography was such that a great deal of power could be produced with only a few generating stations. Power available from La Grande complex is expected to exceed 8 milion kilowatts, or in terms of annual energy, 58 billion kilowatt hours.

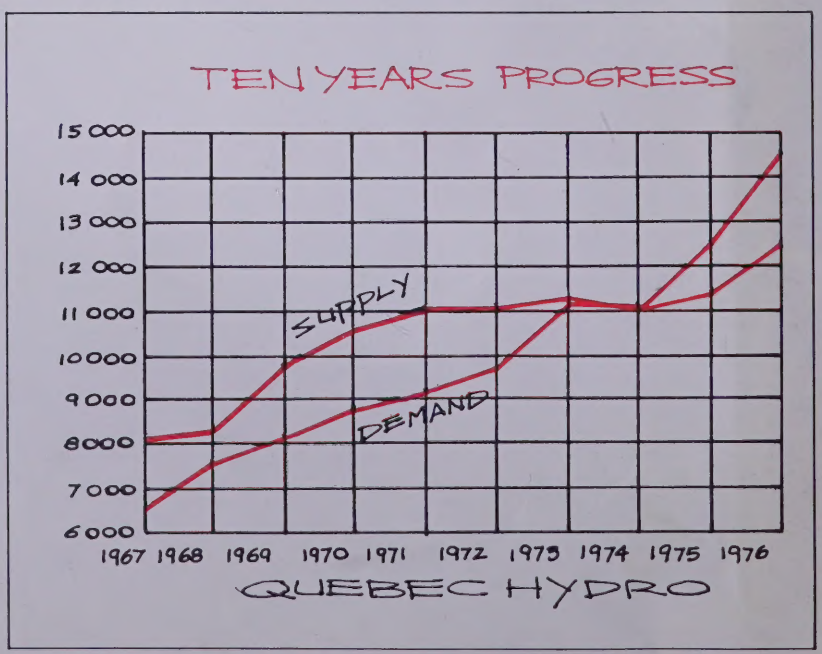
Four main dams and powerhouses will be built along the La Grande River on four sites designated LG-1, LG-2, LG-3 and LG-4. The powerhouses will be distributed along the river for a distance of 480 kilometres from the coast, using the entire vertical drop available between the highest elevation of 363 metres and sea level. The dams will also require 12 spillways, 6 control structures, and 218 dikes. The dikes forming the reservoir areas will have a combined length of about 128 kilometres — double the length of dikes built for the huge Churchill Falls development.

The LG-1 site will be situated 36.8 kilometres up river from Fort George. The powerhouse will be located in the river channel and will have eight 115,000 kilowatt units.

At the LG-2 site, 116 kilometres from Fort George, there will be sixteen 275,000 kilowatt units using a vertical drop of .42 metres and with an installed capacity of 4,400,000 kilowatts.

The power installation at LG-3, located on an island 236 kilometres from the river metres from the river's mouth, will have a capacity of 1,500,000 kilowatts, and its five 300,000 kilowatt units will utilize a vertical drop of 79.5 meters.

Finally, LG-4 will be built 460 kilometres from Fort George, and, similar to LG-2, this powerhouse will be located underground. Four 375,000 kilowatt units, utilizing a

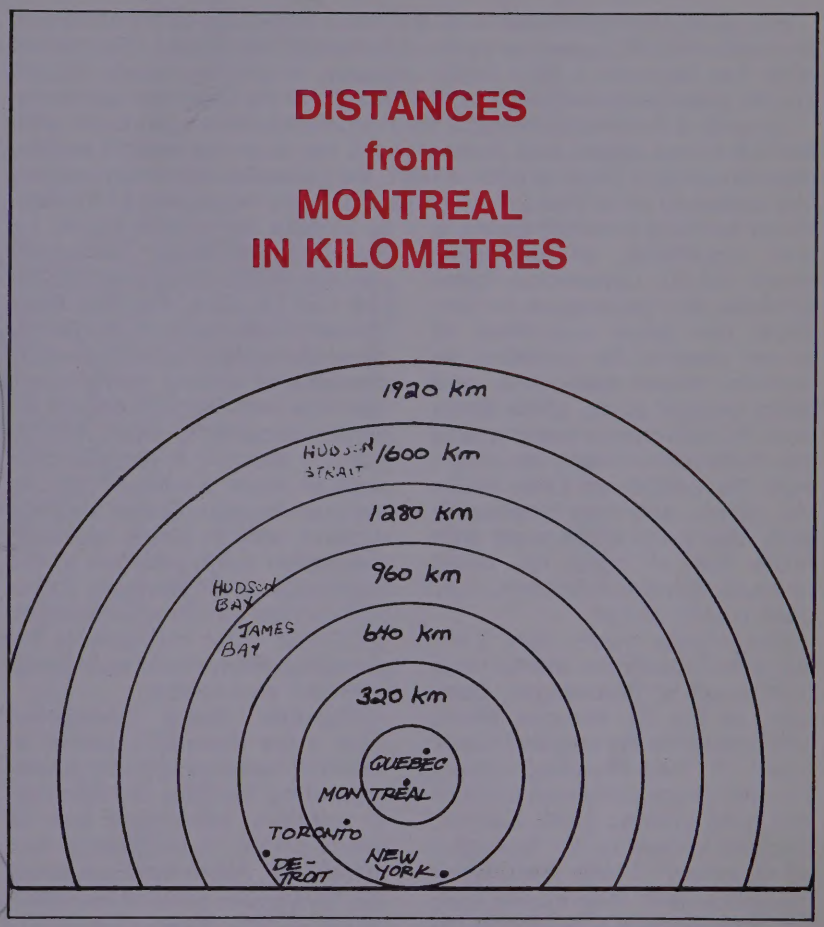


PROJECT

vertical drop of 120 metres will bring its installed capacity to 1,500,000 kilowatts.

The LG-2 powerhouse is expected to be in operation by 1980, delivering partial power of 490,000 kilowatts, while the entire installed power and electricity produced by the La Grande complex, 8.3 million kilowatts in all, will be available for use in Quebec by 1985. This will boost Quebec's position as the leading province in the production of electrical energy in Canada. Currently, Quebec produces about one-third of Canada's total electricity and is rapidly becoming one of the world's leading producers. It now stands second only to Norway in the amount of electricity produced per capita.

While Canada has been endowed with large energy resources, the demand for energy has been increasing at the brisk pace of 6.7% per annum. In Quebec, the rate of increase has been slightly higher with demand doubling about every nine years. It is estimated, in fact, that total capacity required in Quebec may reach 32 million kilowatts in 1985. As these projections indicate, James Bay power production will supply a very significant part of Quebe's future power needs.



James Bay land pact signed

VANCOUVER SUN 10/3/77

OTTAWA (CP) — The James Bay land claims agreement, the first major, modern treaty with Canadian native people, became law today.

Bills making the historic agreement final were proclaimed simultaneously by the federal and Quebec governments.

The agreement gives roughly 6,500 Cree and 4,200 Eskimos living in Quebec's northern territory $255 million over 20 years, ownership of small parcels of land for their communities, plus exclusive hunting, fishing and trapping rights over large tracks of land.

In return, they surrendered their aboriginal rights to the 379,000-square-mile territory.

There had been problems about selection of Eskimo lands, but Indian Affairs Minister Hugh Faulkner said today these were resolved last week.

The Eskimos also have complained that Quebec's language charter violates the agreement and last month asked Ottawa to withhold proclamation of its bill.

Faulkner, however, said in the news release that there is no conflict between the language charter and the James Bay agreement.

A clause in that bill says the agreement takes precedence over any other provincial law applicable to the territory. The federal bill contains a similar clause.

The Eskimos sought exemptions from sections of the language charter requiring children whose parents were not educated in English in Quebec to attend French schools.

They also have demanded exemptions from sections of the language law that would require them to introduce French into native-controlled businesses. Both exemptions were denied.

PLACE	KM FROM MONTREAL
Quebec	230
Ottawa	165
Toronto	480
Windsor	800
Halifax	890
James Bay	830
Winnipeg	1800
St. John's	1650
Goose Bay	1275
Hudson Strait	1600
Jacksonville, Florida	1575

ALL ABOUT

Energy and transportation were the major attractions to the aluminum pioneers of the St. Lawrence Valley at the turn of the century. They started what has become a $2.5 billion industry, employing nearly 50,000 people coast-to-coast, and a key component of the Canadian economy.

Canada is the western world's third largest aluminum producer, after the U.S.A. and Japan, and, in most years, has been the world's leading exporter of ingot. From its birth in 1901, the Canadian aluminum industry has produced more than 24 million tons of ingot, worth over $10 billion.

Water tumbling from high plateaus and mountains, or sweeping down the St. Lawerence, turns turbines and generators to produce the large quantities of power needed for smelting aluminum. Inland waterways, and deep coastal ports, allow ships up to 30,000 tons or more to land raw materials -- mainly bauxite -- from the Caribbean, Latin America, Africa, and from Newfoundland. The same ships leave with holds full of ingot for world markets. Aluminum for the U.S.A. goes mainly by rail.

Seventy-six years ago, Canada's first aluminum smelter was completed at Shawinigan, Quebec, on the St. Maurice River, upstream from the pulp and paper town of Trois-Rivieres. Slowly over the years, aluminum production grew until by 1950, Canada became known as the "purveyor of aluminum". Since then, other countries have entered the market, but Canada's wealth in renewable hydro energy ensures its place as a major aluminum producer.

From its beginning at Shawinigan, the aluminum industry grew to include the Arvida facility on the Saguenay River. Taking advantage of the roaring waters below Lac St. Jean, the Saguenay operation started in 1926 and became the world's largest smelting complex. It retains that distinction now with 560,000 short tons annual capacity in ingot. The aluminum industry in Canada consists of Alcan Aluminum Ltd. as the main ingot producer and fabrication, with its plants spanning the nation (with smelters in the Saguenay, at Shawinigan, Beauharnois near Montreal and Kitimat, B.C.) The other company is the Canadian Reynolds Metals group with four companies.

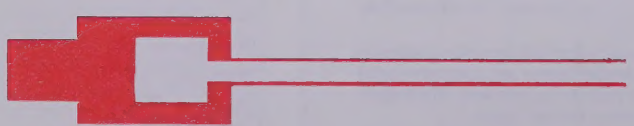
Together these companies have more than $2.5 billion invested in harnessing hydro power, organizing the flow of materials, in smelters, fabricating and alumina plants, in technology and manpower. Alcan employs about 20,000 people, and the Reynolds group 3,300. Alcan, Canadian-based, is the most international of the worlds's aluminum companies. Half its total investment is in Canada, and it has bauxite, alumina, smelting and fabricating interests in the U.S.A., Europe, Scandinavia, India, Japan, Latin America, Autralasia and Africa. The flows of materials are organized on a broad international scale, much like a major world oil company.

The Canadian Reynolds Metals group consists of four separate companies. Canadian Reynolds Metals Co. Ltd., owned 100 per cent by Reynolds Metals of the U.S.A., operates the 175,000 tons yearly capacity smelter at Baie-Comeau, about 800 kilometres northeast of Montreal, on the St. Lawrence north shore. About 60 percent of its ingot is moved to other Reynolds plants in Canada, and the rest goes to Reynold's American finishing operations and other markets.

Reynolds Aluminum Co. of Canada Ltd. is the main fabricating company with a large plant at Cap-de-la-Madeleine, near Trois Rivieres, Quebec, and is minority-owned by Canadians. The Reynolds group also operates a rod, wire and cable plant at La Malbaie, 100 kilometres east of Quebec City; has other fabricating operations in Montreal and Toronto; and extrusion plants at Ste. Therese, Quebec, and Richmond Hill, near Toronto. The Reynolds Canadian sales network covers most major cities coast-to-coast, and the group sells semi-finished products to Canada's large number of independent fab-

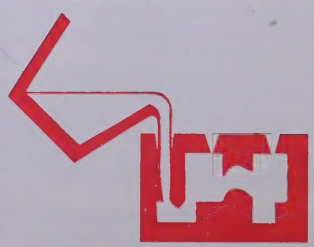
FABRICATING PROCESSES

Extruding



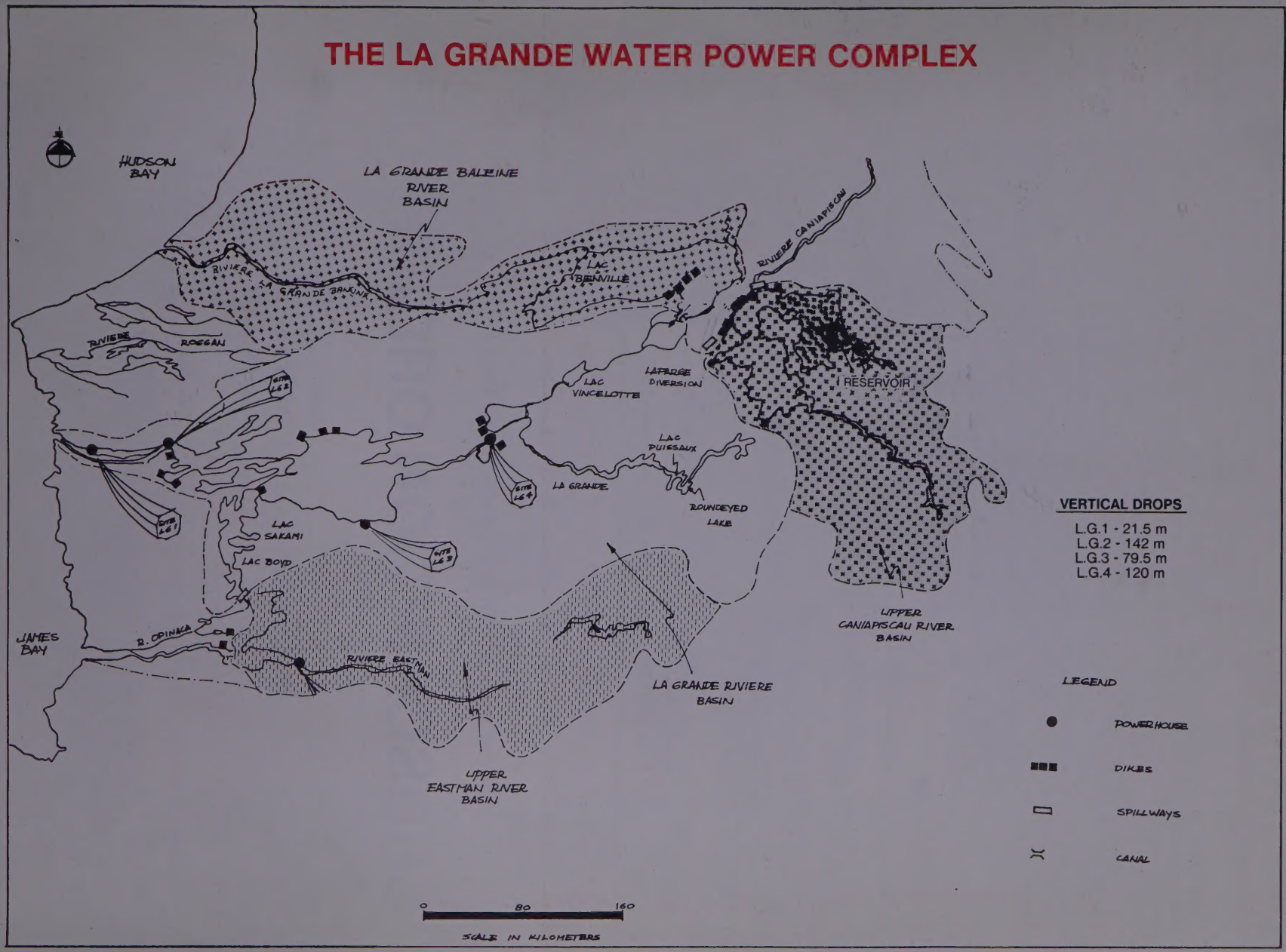
Extruded Shapes

Casting



Aluminum is easy to fabricate. It can be rolled, pressed, drawn, impact extruded, forged, cast formed, welded, riveted, brazed, glued, sheared, sawn, etc. Its surface can be patterned, and anodized to give it a tough, natural or coloured finish.

THE LA GRANDE WATER POWER COMPLEX



VERTICAL DROPS

L.G.1 - 21.5 m
L.G.2 - 142 m
L.G.3 - 79.5 m
L.G.4 - 120 m

LEGEND

- POWERHOUSE
- DIKES
- SPILLWAYS
- CANAL

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LETTERS

Will there be articles on political leaders? We find it difficult in a rural area to have materials on elections and leaders which can be used in class.

The forthcoming issues on population will be very welcome! Also, Canadian foreign policy is difficult to teach due to lack of basis materials on Nato, Norad, U.N. and Commonwealth. We look forward to your magazine.

Pearl Gregor
New Sarepta
High School,
New Sarepta, Alberta

Thank you for the prompt delivery of the back issue of your first edition.

I was particularly interested in your article on the dig at Namu. Here at Simon Fraser we have a particular interest in educating students about the topic of archaeology. Our first interest is, of course, to sensitize students to the need for the conservation and correct excavation of archaeological sites. The archaeology department has an active school programme for just this reason.

Your article on Namu was interesting but incorrect in places. Parts of the diagram of the stratigraphy are completely reversed. I fear that your artist did not have a clue about the hafting or appearance of microblades.

If you decide to do more articles on archaeology please feel encouraged to do so. However, I should like to offer either my services or those of the appropriate faculty member to preview articles on archaeology before publication. We will happily provide this service at no cost to your publication.

Thank you for your interest.

Editha Stephens, Ph.D.
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Ethnology
Simon Fraser
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We apologize for the errors and accept your previewing offer with gratitude.
The Editors

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